



## PROSPECTIVE SECONDARY MATHEMATICS TEACHERS' PERCEPTION ON COMPETENCY OF GENERAL TEACHER BEHAVIORS

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### Abstract:

The aim of this study is to describe the perception on competency of the prospective secondary mathematics teachers in terms of general teacher behaviors. The sample consisted of 104 prospective teachers who were about to graduate. The data for the study were collected through "Prospective Teacher Competency Scale" including 5 dimensions and 43 items with a Likert-type grading. The five dimensions were 1) subject matter, 2) designing, planning, and administering instruction, 3) assessment and evaluation, 4) cooperation with others concerned, 5) professional development. As a result of this study, it was observed that prospective secondary mathematics teachers had a "fairly" level of proficiency perception in terms of general teaching behaviors.

**Keywords:** teacher training, teacher behaviors, perception on competency

### 1. Introduction

Teachers are at the forefront of basic building blocks in raising qualified human power. The training requires a comprehensive dynamic structure and constant inquiry and development of the tasks and qualifications of the teachers who play a key role in the training process. The personal characteristic of the teacher influences the success of the learning activities as a manager, monitoring the learning process and proficiency in teaching, resume, student and other relationships (Guclu, 2002). For this reason, the Ministry of National Education has determined what competency or qualifications teachers should acquire, how they should acquire those competency or qualifications or how to learn and develop the general qualifications of the teaching profession (MEB, 2006).

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Competency is important in terms of achieving the desired level of work that the person has done, having the knowledge and skills required by the job, increasing the efficiency of the work done and ensuring continuity. It was envisaged that the determination of teacher competences would make the work of the teachers more aware and contribute to the improvement of the status within the society and thus provide qualified education (Karacalı & Altun 2004). Bandura (1977) defines teacher self-competency perception as *"a judgment that a teacher can achieve desired outcomes in the learning of students even when the students are not motivated enough."* Teacher-training institutions are expected to take on the role of the future in the context of general teaching behaviors, they need to re-enter the process of restructuring and to train their teachers in this direction (Erisen & Celikoz, 2003). Studies conducted with teachers and teacher candidates emphasized that, as the level of possession of the competency of the teachers' increases, the quality and quality of the pupils may increase (Seker, Deniz & Gorgen, 2005; Karacaoglu, 2008; Ozer & Gelen, 2008; Tural, 2017; Yavuz & Arslan, 2012).

In this context, the purpose of this study is to reveal the perceptions of prospective secondary mathematics teachers about their general teaching behaviors in terms of their adequate vision and to evaluate the perceptions of qualifications in terms of sub-dimensions in this context.

## **2. Method**

The descriptive survey model among qualitative research methods was used to reveal the perceptions of prospective secondary mathematics teachers about their general teaching behaviors in this study. The descriptive survey is suitable for describing a case which exist in the past or present without influencing it (Creswell, 2014).

### **2.1 Research group**

The research group is composed of 104 (85 female, 19 male) Prospective Secondary Mathematics Teachers who were about to graduate at a public university in Turkey.

### **2.2 Data Collection Tools**

In the research, in order to collect data, the "Prospective Teacher Competency Scale" developed by Erisen and Celikoz (2003) was used, including 5 dimensions and 43 items with a Likert-type grading. The five dimensions were 1) subject matter, 2) designing, planning, and administering instruction, 3) assessment and evaluation, 4) cooperation with others concerned, 5) professional development. Answer codes range from 1 to 5 (1 = no, 2 = very little, 3 = partly, 4 = fairly, 5 = completely). The total score ranges from 43 to 215. Proficiency perceptions were evaluated through arithmetic means.

Based on the assumption that intervals in the scale are equal in the interpretation of the findings (4/5), the limits for the alternatives are determined as follows (Yıldızlı, 2011):

- 1,00 - 1,80 no

- 1,81 - 2,60 very little
- 2,61 - 3,40 partly
- 3,41 - 4,20 fairly
- 4,21 - 5,00 completely

### 2.3 Data Analysis

Arithmetic means and standard deviations were used in determining the proficiency perceptions for them in terms of general teaching behaviors in line with the responses given by the teacher candidates to the questionnaire.

### 3. Results

Perceptions of mathematics teacher candidates on competency of general teacher behaviors were examined by considering the five dimensions of the scale. Descriptive statistics related to the level of perception of competence for the first sub-dimension "subject matter" are shown in Table 1.

**Table 1:** Perceptions about "subject matter" dimension

Behaviors	N	Mean	Std. Dev.
1 I have extensive knowledge and skills in the field to teach and I can reflect on my practice.	104	3,77	0,62
2 I know and can use different views, theories, ways of accessing information and research methods in my field.	104	3,61	0,61
3 I can establish a relationship between subject matter and applications in real life.	104	3,69	0,68
4 I can use the knowledge and skills related to special teaching strategies in my field,.	104	3,44	0,79
5 I have the general knowledge to integrate other disciplines with my field.	104	3,59	0,75

As shown in Table 1, the arithmetic mean of prospective teachers' proficiency perceptions related to the "subject matter" dimension ranges from 3.44 to 3.77. Prospective teachers consider themselves "fairly" in terms of teaching behaviors related to the subject matter. Descriptive statistics of some items (including lowest and highest mean scores) related to the level of perception of competence for the second sub-dimension "designing, planning, and administering instruction" are shown in Table 2.

**Table 2:** Perceptions about "designing, planning, and administering instruction" dimension

Behaviors	N	Mean	Std. Dev.
1 When designing and planning teaching, I can take into consideration the models, theories and philosophies underlying the general objectives and training practices of Turkish National Education.	104	3,52	0,79
2 I can plan instruction to include goals, target behaviors, daily lesson plans, instructional materials, instructional strategies, health and safety situations and evaluation. And I can do it systematically.	104	3,70	0,73
3 I can apply strategies to improve students' lifelong learning, understanding and valuing business life, developing positive attitudes and	104	4,00	0,63

	taking responsibility.			
4	I can create learning experiences that are appropriate to the level of development and learning of the students, motivating them and providing active participation.	104	3,96	0,72

As can be seen in Table 2 the arithmetic mean of teacher candidates' proficiency perceptions regarding "designing, planning and administering instruction" varies between 3.52 and 4.00. On the basis of this, it can be said that the teacher candidates considered themselves "fairly" enough in terms of teaching behaviors related to second sub-dimension "designing, planning and administering instruction".

**Table 3:** Perceptions about "assessment and evaluation" dimension

	Behaviors	N	Mean	Std. Dev.
1	I can make and apply plans to prepare students for activities such as postgraduate education, citizenship, professional preparation and development, independent living, enjoyment, effective use of time.	104	3,52	0,88
2	I can create experiences that will allow students to integrate their fields and practices in business life.	104	3,34	0,82
3	I can identify students' wrong or incomplete learning, provide guidance, and provide feedback on their progress.	104	4,17	0,76
4	Based on the evaluation results, I can give information about student development.	104	4,23	0,74

As shown in Table 3, the arithmetic mean of teacher candidates' perceptions of proficiency in "assessment and evaluation of student achievement" ranged from 3.34 to 4.23. On the basis of this, it can be said that the teacher candidates regard themselves as "fairly" in terms of teaching behaviors related to assessment and evaluation of student achievement.

**Table 4:** Perceptions about "cooperation with others concerned" dimension

	Behaviors	N	Mean	Std. Dev.
1	I can take into account factors related to the student environment (family situations, environment, health and economic conditions) that affect the development and learning of the student outside the school.	104	3,90	0,76
2	I can provide an effective working association within the school to improve teaching between school, family and society.	104	3,38	0,82
3	I can express clearly the aims, the time and the responsibilities in the work of the association.	104	3,85	0,67
4	I have knowledge and experience in effective communication, prevention of turmoil and working with teams.	104	3,86	0,82

As can be seen in Table 4, the arithmetic mean of teacher candidates' perceptions of proficiency in cooperation with others concerned for teaching purposes varies between 3.38 and 3.90. Teacher candidates consider themselves "fairly" in terms of the teaching behaviors given in relation to conducting business associations for the purpose of teaching.

**Table 5:** Perceptions about “professional development” dimension

Behaviors	N	Mean	Std. Dev.
1 I can constantly evaluate and improve the productivity and quality of practices implemented with lifelong learning.	104	3,82	0,79
2 I can prepare individual professional development plans to improve instructional performance.	104	3,84	0,77
3 I can integrate the results of all assessments into an individual professional development plan.	104	3,60	0,70
4 I can gain the knowledge and skills to prepare and implement individual professional development plans in the context of lifelong learning.	104	3,60	0,80
5 As a learner and teacher, I can follow the sources (colleagues, literature, professional activities) that will provide individual professional development support.	104	3,81	0,78
6 I can apply the knowledge and skills acquired during the course of professional development.	104	3,99	0,66

As seen in Table 5, the arithmetic mean of teacher candidates' proficiency perceptions related to professional development varies between 3.60 and 3.99. Teacher candidates consider themselves "fairly" proficient in terms of teaching behaviors related to professional development.

#### 4. Conclusion

The purpose of this study was to determine the perceptions of prospective secondary mathematics teachers about their general teaching behaviors in terms of their adequate vision and to evaluate the perceptions of qualifications in terms of sub-dimensions. As a result of this study, it was observed that prospective secondary mathematics teachers had a "fairly" level of proficiency perception in terms of general teaching behaviors. Erişen and Celikoz (2003) found that prospective teachers in technical education faculties find themselves partially satisfied in terms of general teaching behaviors when they are working with teacher candidates. On the other hand, Celikoz and Yıldızlı (2013) stated that primary school mathematics teachers perceive themselves fairly proficient in terms of general teaching behaviors. Gelen and Ozer (2008) investigates the possibilities of prospective teachers and teachers in their general opinions about their teaching qualifications in different branches (n: 242), and it has been found out that, as a result of the study, teacher candidates generally think that they have the competences required by the profession higher than teachers. Yavuz and Arslan (2012) found that primary school mathematics teacher candidates had a "fairly" level of perception of their competence in terms of general teaching behaviors. When the result of this study is compared with other studies, it is seen that prospective secondary school mathematics teachers are more similar to primary school mathematics teacher candidates in terms of general teacher behaviors than working teachers and prospective teachers in technical education faculties.

Prospective teachers perceived themselves “fairly” proficient in all sub-dimensions. However, the lowest mean is seen in the “subject matter” sub dimension.

In line with the results obtained, it is necessary to provide education and training environment that will increase the proficiency of teacher candidates, and to provide in-service supports that will prevent the teachers' perceptions of competence that have started to their career life from falling. These studies should be supported by empirical and qualitative studies.

In this context, when teacher competency literature examined; instigator measures should be taken so that the level of proficiency of teachers can be increased to a higher level. By increasing efforts to improve teachers' working environments, they can be provided with opportunities to improve themselves and thereby improve their performance even further. Teachers should be given skills to cooperate with their colleagues and to make objective assessment of student achievement more objective. By using these skills, work should be done to make sure that teachers realize that they have educational needs. It is possible to investigate the causes of the problems arising from the work environment in which the teachers' perception of competence is related to the subjects such as the provision of the education and training environment to raise the proficiency of the teacher candidates, the social skills, the focus of control and the acceptance levels with the coping mechanisms, In-service supports should be provided that will prevent teachers' perceptions of competence, which have started in their professional lives, from falling. These studies should be supported by empirical and qualitative studies. Darling-Hammond (2017) has stated that teaching in Finland become the most sought after profession after medicine in her study about teacher education around the world. That is to say, we have to give more importance to teacher education in order to advance in education.

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### **References**

1. Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.
2. Creswell, J. W. (2014). *Araştırma Deseni* (Edt: Demir, SB). Ankara: Egiten Kitap.
3. Celikoz, N., & Yıldızlı, H. (2013). The self-efficacy of maths teachers of primary schools of general teaching behaviors (The Sample of Ankara). *Researcher: Social Science Studies*, 1(1), 1-23.
4. Darling-Hammond, L. (2017) Teacher education around the world: What can we learn from international practice?, *European Journal of Teacher Education*, 40(3), 291-309.
5. Erişen, Y., & Celikoz, N. (2003). The self-perception on competency of the prospective teachers in terms of general teacher behaviors. *Gazi University Türk Eğitim Bilimleri Dergisi*, 1(4), 427-439.
6. Guclu, N. (2002). Sistem Yaklaşımı ve Eğitim Orgutleri. (Editor: Leyla Kuçukahmet) Ogretmenlik Meslegine Giris. Ankara. Nobel Yayın Dağıtım.

7. Karacaoğlu, O. C. (2008). The perceptions of teachers' sufficiency. *Yuzuncu Yıl University Journal of Education Faculty*, 5(1), 70-97.
8. Karacalı, A. (2004). Kerem Altun, ile "Öğretmen Yeterlikleri" Uzerine. *Bilim ve Aklın Aydınlightında Eğitim Dergisi*, 5(58), 20-26.
9. MEB. (2006). General proficiency of teaching profession. Öğretmen Yetistirme ve Eğitimi Genel Müdürlüğü. <http://otmg.meb.gov.tr>. Retrieved on July 15. 2014.
10. Ozer, B., & Gelen, I. (2008). Having general adequacy of teaching profession evaluation of the views of teacher candidates and teachers about their. *Mustafa Kemal University Journal of Social Sciences Institute*, 5(9), 39-55.
11. Seker, H., Deniz, S., & Gorgen, I. (2005). Prospective teachers' assessment of teacher competencies. *Educational Administration: Theory and Practice*, 42(42), 237-253.
12. Tural, G. (2017). Perceptions of Secondary Education Science Teacher Candidates on Their Teaching Profession Competencies, *Kastamonu Education Journal*, 25(3), 1249-1262.
13. Yavuz, G. & Arslan, C. (2012). Prospective mathematics teachers' perceptions of teacher competences, 11. Mathematics Congress, 19-21 September, 2012, Samsun.
14. Yıldızlı, H. (2011). İlköğretim matematik öğretmenlerinin genel öğretmenlik davranışları açısından kendilerine yönelik yeterlilik algıları (Ankara sample) (Unpublished doctoral dissertation, Selcuk University, Social sciences Institute).

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